National Institute of Environmental Health Sciences

The comfort, energy and health implications of London's urban heat island

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Year: 2011

Journal: Building Services Engineering Research & Technology. 32 (1): 35-52

Abstract:

The urban heat island (UHI) is a well-known effect of urbanisation and is particularly important in world megacities. Overheating in such cities is expected to be exacerbated in the future as a result of further urban growth and climate change. Demonstrating and quantifying the impact of individual design interventions on the UHI is currently difficult using available software tools. The tools developed in the LUCID ('The Development of a Local Urban Climate Model and its Application to the Intelligent Design of Cities') research project will enable the related impacts to be better understood, quantified and addressed. This article summarises the relevant literature and reports on the ongoing work of the project. Practical applications: There is a complex relationship between built form, urban processes, local temperature, comfort, energy use and health. The UHI effect is significant and there is a growing recognition of this issue. Developers and planners are seeking advice on design decisions at a variety of scales based on scientifically robust, quantitative methods. The LUCID project has thus developed a series of tools that (1) quantify the effect of urbanisation processes on local environmental conditions, and (2) quantify the impact of such conditions on comfort, energy use and health. The use of such tools is vital, both to inform policy but also to be able to demonstrate compliance with it.

Source: http://dx.doi.org/10.1177/0143624410394530

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : England

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat related morbidity and mortality

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Methodology

Resource Type: ☑

format or standard characteristic of resource

Policy/Opinion, Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content